

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

| | | |
|---|---|---|
| Applicant's or agent's file reference 03/116 PCT | FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below. | |
| International application No. PCT/ EP 03/ 09746 | International filing date (day/month/year) 01/09/2003 | (Earliest) Priority Date (day/month/year) 30/08/2002 |
| Applicant VITAK BV | | |

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 5 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☒ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

☐ the text is approved as submitted by the applicant.

☒ the text has been established by this Authority to read as follows:

COMPOSITIONS COMPRISING VITAMIN K FOR TREATING OR PREVENTING AGE-RELATED STIFFENING OF ARTERIES

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III: The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☐ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

☒ None of the figures.

INTERNATIONAL SEARCH REPORT

International Application No

P EP 03/09746

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A61K31/122 A61K31/593 A61P9/04 A61P9/10 A61P9/12
A61P9/14

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A61K A61P

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, BIOSIS, MEDLINE, WPI Data, PAJ, EMBASE, PASCAL, SCISEARCH, CHEM ABS Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|--|-----------------------|
| X | EP 0 679 394 A (EISAI CO LTD) 2 November 1995 (1995-11-02) cited in the application the whole document --- | 1-12,19 |
| X | KAWASHIMA HIDETOSHI ET AL: "Effects of vitamin K2 (Menatetrenone) on atherosclerosis and blood coagulation in hypercholesterolemic rabbits" JAPANESE JOURNAL OF PHARMACOLOGY, vol. 75, no. 2, October 1997 (1997-10), pages 135-143, XP009020469 ISSN: 0021-5198 cited in the application the whole document --- -/-- | 1-12,19 |

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *&* document member of the same patent family

Date of the actual completion of the international search

14 November 2003

Date of mailing of the international search report

28/11/2003

Name and mailing address of the ISA

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INTERNATIONAL SEARCH REPORT

International Application No

PO 03/09746

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|---|-----------------------|
| A | MH BEERS: "The Merck Manual of Diagnosis and Therapy" 1999, MERCK RESEARCH LABORATORIES, WHITEHOUSE STATION XP002260508 page 1654 -page 1658 --- | 1-19 |
| A | M. EDER: "Lehrbuch der Allgemeinen Pathologie und der Pathologischen Anatomie" 1984, SPRINGER VERLAG, HEIDELBERG XP002260509 page 345 -page 351 --- | 1-19 |
| X | EP 0 613 877 A (EISAI KAGAKU KK) 7 September 1994 (1994-09-07) page 2, line 5-8 --- | 1-12,19 |
| X | EP 1 153 548 A (UNILEVER PLC ;UNILEVER NV (NL)) 14 November 2001 (2001-11-14) claims 14,15 --- | 1-12,19 |
| X | GB 2 180 747 A (KREITZMAN STEPHEN NEIL) 8 April 1987 (1987-04-08) example 4 --- | 13-17 |
| X | DE 199 55 607 A (NOVEMBER AG GES FUER MOLEKULAR) 7 June 2001 (2001-06-07) column 3, line 46-52 --- | 18 |
| X | VERMEER C ET AL: "Role of K vitamins in the regulation of tissue calcification." JOURNAL OF BONE AND MINERAL METABOLISM. JAPAN 2001, vol. 19, no. 4, 2001, pages 201-206, XP001153227 ISSN: 0914-8779 the whole document --- | 1-12,19 |
| P,X | WO 03 013420 A (VERMEER CEER ;VITAK BV (NL)) 20 February 2003 (2003-02-20) the whole document ----- | 1-19 |

INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP 03/09746**Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)**

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.: —
because they relate to subject matter not required to be searched by this Authority, namely:
Rule 39.1(iv) PCT - Method for treatment of the human or animal body by therapy Although claim 19 is directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

P 03/09746

| Patent document cited in search report | | Publication date | Patent family member(s) | Publication date |
|---|---|---------------------|----------------------------|---------------------|
| EP 0679394 | A | 02-11-1995 | DE 69501421 D1 | 19-02-1998 |
| | | | DE 69501421 T2 | 23-04-1998 |
| | | | EP 0679394 A2 | 02-11-1995 |
| | | | JP 8253415 A | 01-10-1996 |
| EP 0613877 | A | 07-09-1994 | JP 6312950 A | 08-11-1994 |
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| | | | EP 0613877 A1 | 07-09-1994 |
| | | | US 5476955 A | 19-12-1995 |
| | | | US 5677471 A | 14-10-1997 |
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| EP 1153548 | A | 14-11-2001 | EP 1153548 A1 | 14-11-2001 |
| | | | CA 2347387 A1 | 12-11-2001 |
| | | | US 2002015762 A1 | 07-02-2002 |
| GB 2180747 | A | 08-04-1987 | EP 0238533 A1 | 30-09-1987 |
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| | | | CA 2388103 A1 | 31-05-2001 |
| | | | WO 0137818 A2 | 31-05-2001 |
| | | | EP 1235569 A2 | 04-09-2002 |
| | | | JP 2003514849 T | 22-04-2003 |
| WO 03013420 | A | 20-02-2003 | WO 03013420 A2 | 20-02-2003 |